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A computer science researcher with research interests in network architecture (especially in edge computing), protocol stack, and SDN/NFV. Interests in not only network system but also in all layers of computer system such as hardware design, OS, middleware, and userland applications. Experience in developing a session layer protocol in userland providing applications with rich communication paths (multipath, DTN, middlemox, and etc.) in C language and in developing a set of middleware for distributed edge cloud computing in C language.

EDUCATION

APR. 2018 – *Current* Ph.D student in ENGINEERING, **Keio University**, Japan

MAR. 2018 M.E. degree in ENGINEERING
from **Keio University**, Japan (GPA: 3.67/4)
Thesis: “**Design and Implementation of A Communication Mechanism
for Application-level Service Chaining**” | Advisor: Fumio TERAOKA

MAR. 2016 B.E. degree in INFORMATION AND COMPUTER SCIENCE
from **Keio University**, Japan (GPA: 3.81/4)
Thesis: “**A Prototype Implementation of A Session Layer on New
Generation Network Architecture: ZNA**” | Advisor: Fumio TERAOKA

EMPLOYMENT

MAR. 2017 – *Current* Research Assistant at IJ Innovation Institute
Developing Software around LKL and MPTCP

AUG. 2016 – SEP. 2016 Internship at Yahoo! Japan
Developing Cassandra at Data Platform Department

LANGUAGES

JAPANESE: Native Speaker
ENGLISH: Good Command
GERMAN: Basic Communication

PROGRAMMING SKILLS

Application development using C/Python/Go
Network operation (routers, L2/L3 switches, servers, etc.)

PUBLICATIONS

Journal Articles

1. Hiroki Watanabe, Takao Kondo, Kunitake Kaneko, Fumio Teraoka, “**Inserting Layer-5 to Provide**

Applications with Richer Functions through Common API," *IEICE Transactions on Communications*, Vol. E101-B, No.9. (will be published)

Proceedings

1. H. Watanabe, T. Kondo, K. Kaneko and F. Teraoka, **"Separating Communication Policies and Mechanisms to Make Protocol Layering Clearer,"** *2017 26th International Conference on Computer Communication and Networks (ICCCN)*, Vancouver, BC, 2017, pp. 1–9. (Acceptance Rate: 27%)

Workshops

1. Kazuki Hayashi, Hiroki Watanabe, Takao Kondo, Fumio Teraoka, **"Automatic Construction Mechanism for Experimental Virtual Network Considering Network Topology,"** *IEICE Tech. Rep.*, vol. 117, no. 472, IA2017-73, pp. 37–42, March 2018.
2. Yutaro Hayakawa, Hiroki Watanabe, Kazuya Okada, **"cnfv: A Container-based Lightweight NFV Architecture,"** *IEICE Tech. Rep.*, vol. 117, no. 303, NS2017-111, pp. 1–6, November 2017.
3. Hiroki Watanabe, Takao Kondo, Kunitake Kaneko, Fumio Teraoka, **"Underway-aware Virtual Network Construction Infrastructure,"** *The Eighteenth Workshop on Internet Technology (WIT2017)*, Matsuyama, June 2017.
4. Daiki Mitake, Hiroki Watanabe, Kunitake Kaneko, Fumio Teraoka, **"Extention of Layer-5 for DTN on ZNA, a New Generation Network Architecture,"** *IEICE Tech. Rep.*, vol. 116, no. 434, IA2016-89, pp. 61–66, January 2017.
5. Hiroki Watanabe, Kunitake Kaneko, Fumio Teraoka, **"A Prototype Implementation of Session Layer on New Generation Network Architecture ZNA,"** *IPSJ SIG Tech. Rep. on the 78th National Convention of IPSJ*, vol. 2016, no. 1, pp. 81–83, March 2016.
6. Hiroki Watanabe, Kunitake Kaneko, Fumio Teraoka, **"L5-path: A Session Layer Protocol on ZNA, a New Generation Network Architecture,"** *IEICE Tech. Rep.*, vol. 115, no. 482, IA2015-103, pp. 191–196, March 2016. (Student Incentive Award)
7. Hiroki Watanabe, Keigo Mizotani, Yusuke Hatori, Hiroyuki Chishiro, Nobuyuki Yamasaki, **"A Low Latency Real-Time Execution with Interrupt Wake-up Structure,"** *IPSJ SIG Tech. Rep. on the Embedded System Symposium 2015*, pp. 531–543, October 2015.

Posters / Demonstrations

1. Hiroki Watanabe, Fumio Teraoka, **"Application Function Chaining: Fusion of Communication and Computation,"** *The 18th Annual Keio Science and Technology Exhibition KEIO TECHNO-MALL 2017*, December 2017.
2. Hiroki Watanabe, Daiki Mitake, Shungo, Kusakabe, Sho Sugiura, Kunitake Kaneko, Fumio Teraoka, **"ZINK on ZNA: Content Distribution Mechanism with Efficient Bandwidth Sharing on New Generation Network Architecture,"** *The 17th Annual Keio Science and Technology Exhibition KEIO TECHNO-MALL 2016*, December 2016.
3. Hiroki Watanabe, Shinji Kawaguchi, Ryota Ohsima, Kenta Shimamatsu, Kunitake Kaneko, Fumio Teraoka, **"Open Data Oriented Network Management Infrastructure,"** *The 16th Annual Keio Science and Technology Exhibition KEIO TECHNO-MALL 2015*, December 2015.
4. Hiroki Watanabe, Shinji Kawaguchi, Ryota Ohsima, Kenta Shimamatsu, Kunitake Kaneko, Fumio Teraoka, **"Network-aware Communication Mechanism with KANVAS and Session Layer,"** *The 5th DMC Symposium*, December 2015.

AWARDS

1. "Student Incentive Award," IEICE-IA, March 2016.